

DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 13.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-012850**Date Inspected:** 30-Mar-2010**Project Name:** SAS Superstructure**OSM Arrival Time:** 1000**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1830**Contractor:** Oregon Iron Works Clackamas, Or.**Location:** Clackamas, OR**CWI Name:** M. Gregson, J. Salazar**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** Hinge K Pipe Beams**Summary of Items Observed:**

The Quality Assurance Inspector Sean Vance arrived on site at Oregon Iron Works, Inc (OIW) in Clackamas, OR, to randomly observe the in process welding of the Hinge K Pipe Beam assemblies. The QA Inspector arrived on site to randomly observe the OIW Quality Control (QC) Inspectors in process and completed visual and nondestructive testing. Upon the arrival of the QA Inspector the following observations were made:

Hinge-K Pipe Beam Assembly 101A-1:

The QA Inspector witnessed OIW QC Inspector Rob Walters performing 100 % informal Ultrasonic Testing (UT), on the previously completed weld repairs. The QA Inspector noted that this was the Complete Joint Penetration (CJP), AWS D1.5 B-U7-S, Fuse 120A-1 to Forging 102A-1 and is designated as Weld Joint #WM4-1. QC Inspector Walters explained that he had previously performed a UT calibration utilizing an AWS Type 2 Reference block, for a 60 and 70 degree angle with a 2.25 MHz transducer. QC Inspector Walters then explained that the testing will be performed in accordance to the OIW approved testing procedure, NP-2244-(13)-01. QC Inspector Walters explained that the testing currently being performed is for informational purposes only and the final testing will be performed after the minimum 72 hrs. cooling time, per AWS D1.5. QC Inspector Walters explained that the testing will be performed on Face "A", on the Forging side and Face "B", from the Fuse side. QC Inspector Walter later explained that he had completed the UT and no rejectable indications were found. QC Inspector Walters then explained that the final UT will be performed on 4/2/10, per the 72 hr. cooling time.

Hinge-K Pipe Beam Assembly 102A-2:

The QA Inspector witnessed WID #B62 (Marcus Belgarde), performing the submerged arc welding (SAW) on the a110 Base plate to b106 HPS 485W stiffener. The QA Inspector noted that this weld joint was designated as a

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partial joint penetration (AWS D1.5 TC-P4-S), weld joint (WJ) #W2-17 and WID #B62 was performing the SAW in the flat (1G) position. The QA Inspector noted that the SAW fill passes were currently in-process and noted that the OIW approved welding procedure specification (WPS 4020), was being utilized. The QA Inspector noted that QC Inspector Jose´ Salazar, was present and QC Inspector Salazar explained that the in-process welding parameters/pre-heat temperatures, were intermittently verified. QC Inspector Salazar explained that the average welding parameters for the SAW fill passes, currently in process, were recorded at 580 amps/32.5 volts, with a pre-heat of approximately 350 degrees Fahrenheit (177 C) and travel speed of 20 inches per minute (i.p.m). The QA Inspector randomly verified pre-heat of approximately 350 degrees Fahrenheit (177 C) and welding parameters to be in compliance with the applicable WPS 4020. The QA Inspector noted that the SAW appeared to be in compliance with AWS D1.5 and the applicable WPS.

Hinge-K Pipe Beam Assembly 102A-3:

The QA Inspector witness an OIW Machinist continuing to machine the completed HPS 485W, mill-to-bear stiffeners.

Hinge-K Pipe Beam Assembly 120A-8:

The QA Inspector witnessed welder WID #F17 (Igor Frolov) performing Flux Core Arc Welding (FCAW), on the completed stainless steel overlay, in the flat position and occasional grinding. The QA Inspector noted that QC Inspector Jose´ Salazar was present and QC Inspector Salazar explained that WID #F17 was continuing to perform the FCAW, to repair the underfilled areas and undercut, present in the overlay after the ESW was complete. QC Inspector Salazar explained that the grinding was being performed, to remove excessive high spots and misc. visual discrepancies present in the overlay. QC Inspector Salazar explained that welding parameters were previously recorded during the FCAW, at 175 amps/24.6 volts, travel speed of 355 mm/min. and a pre-heat temperature recorded at approximately 150 degrees Fahrenheit (66 C). The QA Inspector verified the welding parameters and the minimum pre-heat temperatures were in compliance with the applicable WPS 7003. The QA Inspector verified WID #F17 was currently qualified for this welding process and position and that the FCAW being performed, appeared to be in compliance with WPS 3293.

AG Machining (Boring, OR)

On this date, the QA Inspector arrived at AG Machine shop, to witness the final machining, on this Fuse 120A-6. Upon arriving, the QA Inspector met with the AG Machinist, Terry Schmale and Mr. Schmale explained that the second cut pass, for final machining, was currently in-process and approximately 50 % complete. Mr. Schmale then explained that there were currently 3 GTAW weld repairs, that will be needed on the finished overlay, which were discovered during the final machining process. The QA Inspector noted that these appeared to be small clusters of slag inclusions, caused during the in-process Electroslag Welding (ESW), of the overlay. Mr. Schmale then explained that he will continue with this cut pass and then notify OIW Project Manager Bill Pender of the weld repairs and then OIW will decide how to proceed with the repairs. The QA Inspector was then informed by Mr. Schmale that one more cut pass will be needed and then final finish honing, utilizing a Superfinisher, to achieve the desired outside diameter measurement. The QA Inspector noted that the contract requires a final finished outside diameter of 1920 mm (+/- 1mm).

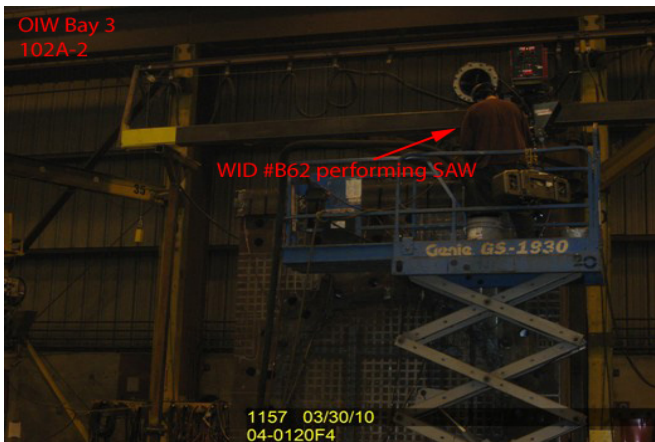
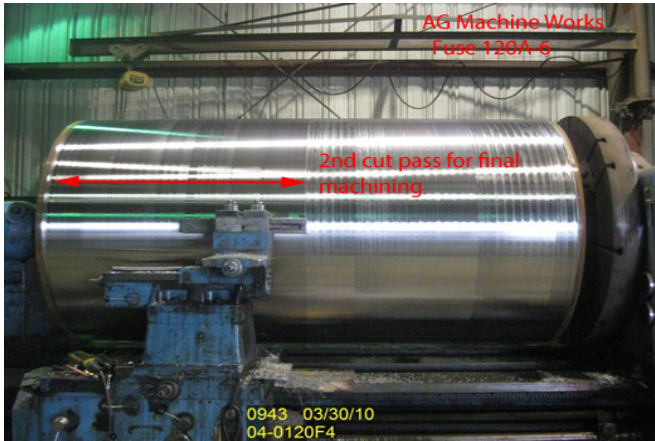
Material, Equipment, and Labor Tracking (MELT)

QA Inspector Sean Vance performed a verification of material, personnel and equipment involved with the project. The QA Inspector observed at Oregon Iron Works: 4 OIW production personnel and 2 QC.

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The QA Inspector noted that the following personell were present at AG Machine shop:1 Machinist and 1 Machinist supervisor.



Summary of Conversations:

As noted above.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mohammad Fatemi (916) 813-3677, who represents the Office of Structural Materials for your project.

Inspected By: Vance,Sean

Quality Assurance Inspector

Reviewed By: Adame,Joe

QA Reviewer
